stuartenergy
the power of hydrogen

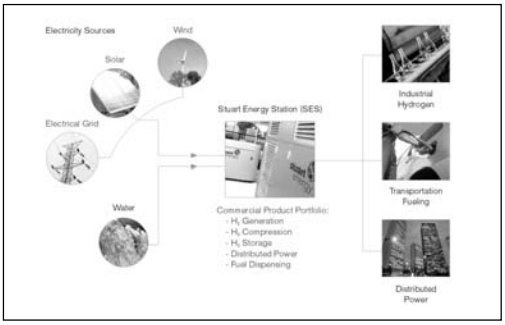
Installed
Stuart Energy Stations: Hydrogen Lessons Learned

August 11, 2004

Our Company

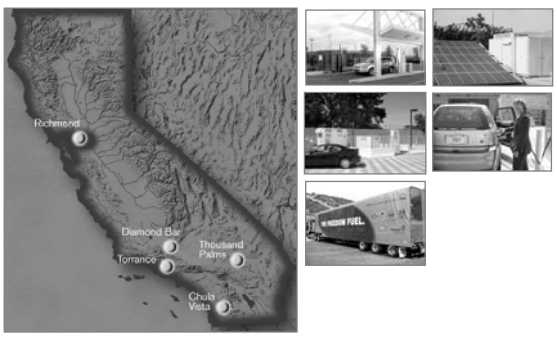
- Since 1948, the pioneer and world leader in building and marketing commercial on-site hydrogen infrastructure solutions based on water electrolysis
- Leading provider of Stuart Energy Stations (SES) for the industrial, power and transportation markets, with over 1,100 stations sold in approximately 100 countries
- Based in Toronto area with offices in Belgium, United States, China, India and Russia, employing about 140 people plus a worldwide agent network
- In 2003, acquired our most significant competitor, Belgium-based Vandenborre Technologies, gaining access to state of the art technology, European markets and strong partners

SES Process Flow



Our Global Install Base

SES Installed in California



Upcoming SES in California

Importance of Outreach

- Our experience is the outreach is the sooner the better
  - Local authorities
  - City officials and government
  - Communities
- Work closely with our customers
- Many of our installed SES units are in industrial zones
  - Toyota headquarters – on their property
  - SunLine Transit – remote area on their property
  - AQMD - existing natural gas station on property
  - Chula Vista - City property
- Public outreach was limited in these projects
- Conducted outreach to the employees, local authorities, assisted in tours,etc.

Importance of Outreach

- SES at AC Transit in Richmond
  - in a residential neighborhood
  - invited neighborhood residents to grand opening
  - invited science class from local schools to opening
  - invited mayor and congressman to participate in the event
  - Local community and media reacted very positively

Importance of Outreach

- Always have opening event
- Invite city officials, local authorities, media, etc.
- Develop fact sheet hand out include:
  - station data
  - how does it work
  - safety info – people are looking for comfort
  - people want a familiar experience
- If possible have a non-technical person fill the car
  - demonstrates that hydrogen is easy to use and safe

Congressman Miller fills 'er up with hydrogen

Case Study – what a difference a couple of years makes

AC Transit (Richmond)

- Began project in 1999
- One of first stations in California
- 1 ½ years for permit to build station
- Fire Marshall approval more difficult
  - no codes and standards in place very – hydrogen not on anyone's radar
- Participated in environmental justice review
  - neighborhood required assessment of impact of station
- Training for first responders

AQMD (Diamond Bar)

- Began project in 2003
- Installed 6 station in California
- 3 hours for permit to build
- Fire Marshall familiar with natural gas
  - had some knowledge of hydrogen
  - all tribal knowledge
- No NIMBY reaction
- Conducted multiple training sessions for first responders

Lessons Learned

- Early buy in by local authorities is key
- Training and education of people at multiple levels in organization is critical
  - Training includes basic hydrogen properties, how the station works, station safety features
- Face to face discussion with local authorities expedites station approvals
- Natural gas experience or familiarity is very helpful

Lessons Learned

- Find local champions if you encounter NIMBY groups
- Work with local media in advance of opening, educate them on the benefits of hydrogen
- Address any safety concerns head on – don't skirt around the issues
- General public ready to embrace hydrogen and realize its environmental benefits they just want to feel safe at the same time